

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION**

HYTERA COMMUNICATIONS CORP.)	
LTD.,)	
)	
Plaintiff,)	CASE NO. 1:17-cv-001794-DCN
)	
v.)	Honorable Donald C. Nugent
)	
MOTOROLA SOLUTIONS INC.,)	Magistrate Judge William H. Baughman, Jr.
)	
Defendant.)	
)	

**PLAINTIFF HYTERA COMMUNICATIONS CORP. LTD'S OPENING CLAIM
CONSTRUCTION BRIEF UNDER L.P.R. 4.4(a)**

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I. INTRODUCTION

Claim construction is designed to determine the meaning of a patent, not rewrite it. To that end, Hytera simply asks the Court to give the words in its patent the full scope of their ordinary meaning and to read those terms in the context of the patent. In sharp contrast, Motorola urges this Court to severely limit the meaning of Hytera’s claims based on what it wanted, expected, or needed to see in Hytera’s patent to escape infringement. Rather than confine its proposed constructions to Hytera’s patent, Motorola relies heavily on its expert to contradict well-settled Federal Circuit law, turn ordinary words into “terms of art,” and reimagine the claims to its benefit. This is not the law—a point even Motorola’s expert had no choice but to concede. Ex. J, at 200:21–22. All of this begs the question: why is Motorola so intent on going outside of Hytera’s patent to construe the claims? Because of what’s at stake.

Hytera patented an innovative method for automatically increasing the audibility of mobile radio communications in noisy environments. This “adaptive” audio technology is now the gold standard for mobile two-way radios, so much so that Motorola implemented the same technology across its flagship line of MOTOTRBO products as “Intelligent Audio.” While Motorola argues that its Intelligent Audio radios do not operate “using the claimed method,” that “claimed method” is precisely what is in dispute. Ex. D, at 4. For Motorola, “claimed method” means the exceedingly narrow interpretation of Hytera’s claim language found in Motorola’s proposed constructions. The Court need not indulge Motorola’s approach, and the Federal Circuit makes clear that doing so would be erroneous. Accordingly, Hytera respectfully requests that the Court adopt Hytera’s proposed claim constructions.

II. SUMMARY OF THE DISPUTE

For many mobile radio users, the inability to hear and understand voice communications over surrounding noise can literally be an issue of life or death. Conventional approaches to compensate for noisy conditions ranged from unhelpful (e.g., emphasizing high frequencies at the expense of fidelity or clarity) to dangerous (e.g., the constant distraction of manually adjusting controls). Recognizing these shortcomings, Hytera invented a method that *automatically* adjusts both *volume* and *frequency response* (i.e., treble or bass frequencies) based on the actual level of *ambient noise*. This tandem approach—distinct adjustments for both volume and frequency response—results in increased audibility as noise levels change and eliminates the need for manual radio adjustments.

These distinct steps apparently pose a problem for Motorola’s MOTOTRBO radios, as Motorola’s proffered constructions ignore the volume adjustment completely and attempt to shoehorn *amplification* and *gain* into the frequency response adjustment. This is a deliberate misreading of Hytera’s patent. Hytera’s claimed frequency response adjustment simply requires “performing a treble boost processing” or “performing a bass boost processing” to emphasize high or low frequencies. Neither of these claim terms are described as, let alone limited to, adjustments that require *amplification* or *gain*. *In fact, amplification is never mentioned in Hytera’s patent, and gain appears only in connection with the volume adjustment.* Yet Motorola’s constructions for “treble boost” and “bass boost” not only seek to inject *amplification* and *gain* into these disputed claim terms, but they do so in a way that limits Hytera’s claim to only *one type* of frequency adjustment—“amplification of all [treble/bass] frequencies using a gain greater than 1.” This concept appears nowhere in Hytera’s patent.

Motorola’s other disputed claim term—“an energy value”—takes a similar approach. Based on its expert’s interpretation of the word “an,” Motorola asks the Court to limit “an energy value” to “a *single* energy value.” The problem: as a “general rule,” the Federal Circuit construes “an” to mean “one or more”—not one or single. Motorola’s construction is not only wrong, but it seeks exactly the same construction—“single”—that the Federal Circuit recently reversed. *SanDisk Corp. v. Kingston Tech. Co.*, 695 F.3d 1348, 1360 (Fed. Cir. 2012).

Accordingly, the parties are left with a dispute over three claim terms:

Hytera’s Proposed Constructions	Motorola’s Proposed Constructions
“ an energy value ”: Plain and ordinary meaning; no construction required.	“ an energy value ”: a single energy value.
“ treble boost processing ”: An automatic adjustment that results in increased audibility of high frequencies in the voice band of the current output.	“ treble boost ”: an amplification of all treble frequencies using a gain greater than 1.
“ bass boost processing ”: An automatic adjustment that results in increased audibility of high frequencies in the voice band of the current output.	“ bass boost ”: an amplification of all bass frequencies using a gain greater than 1.

Ex. B, at app’x 1–5; Ex. C, at 2–6.

Hytera’s claim construction position is simple: each of the disputed terms should be given the full scope of their ordinary meaning. For example, “treble boost processing” and “bass boost processing” should encompass the full range of ways to improve the audibility of high or low frequencies—not the lone way selected by Motorola. Nearly two decades of claim construction precedent supports this position, including a “heavy presumption” in favor of ordinary meaning. Moreover, it is well established that the *intrinsic evidence* (i.e., the patent and file history) typically controls the interpretation of claims. In this case, the intrinsic evidence confirms:

- Hytera’s proposed construction is consistent with the meaning of the patent;

- Hytera never redefined the disputed claim terms to limit them in any way; and
- Hytera did not disavow or surrender the full scope of the disputed terms.

Hytera's proposed constructions are precisely what a patentee should expect from claim construction: "[t]he patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope." *Thorner v. Sony Computer Entertainment America LLC*, 669 F. 3d 1362, 1367 (Fed. Cir. 2012).

On the opposite end of the spectrum, Motorola's proposed constructions are a litigation construct designed to severely narrow the claim terms at issue. In an attempt to skirt the intrinsic record, Motorola relies largely on *extrinsic evidence*—chiefly its expert, Dr. Anderson—to rewrite the claims outside the context of the patent. When the plain reading of a word contradicts Motorola's construction, its expert anoints it a "term of art" and defines a new meaning (as is the case with "treble boost" and "bass boost"). When the case law undercuts Motorola's construction, it ignores precedent in favor of an expert opinion for terms as simple as "an" (as is the case with "an energy value"). Worse, when confronted with actual words of the patent, it limits the scope of the claim to one figure in one embodiment—a practice that Motorola's expert admits is "inappropriate."

Q. Would it be inappropriate to limit treble boost by the disclosure in Figure 5 or bass boost in the disclosure in Figure 6?

MR. CARTER: Objection; asked and answered multiple times.

A. That would be inappropriate.

Ex. J, at 288:13–18; *see also id.* at 277:7–288:18.

Hytera's constructions are rooted in ordinary meaning, seeking no more than the full scope of the words used in its patent, and supported by the intrinsic record. Accordingly, Hytera respectfully requests that the Court adopt its proposed claim constructions.

III. BACKGROUND

A. Hytera's invention increases the audibility of voices by automatically adjusting both volume and frequency response based on ambient noise.

Hytera developed and patented a method that automatically adjusts both the volume and frequency response of voice communications as mobile radio users move through areas having different noise conditions. This innovative method resulted in United States Patent No. 9,183,846 ("the '846 Patent," attached as Ex. A).

As described in the '846 Patent, Hytera's invention solved key shortcomings in the prior art. '846 Patent, at 1:28–65, 4:5–15. Conventional mobile radios required constant volume adjustments when moving through changing noise levels—a potentially dangerous distraction for radio users. *Id.* at 1:16–28. Moreover, early technical approaches were of little help, as they tried to improve intelligibility by emphasizing high frequencies “at the cost of decreasing the fidelity.” *Id.* at 1:36–40.



To overcome these obstacles, Hytera's '846 Patent teaches adaptively adjusting **both** volume and frequency response. *Id.* at 2:2–5, 3:64–4:15, 4:54–60. As the Abstract of the '846 Patent states, “the method can adjust the current volume and adjust the frequency response by the treble enhancement or the bass enhancement based on the energy value of the current ambient

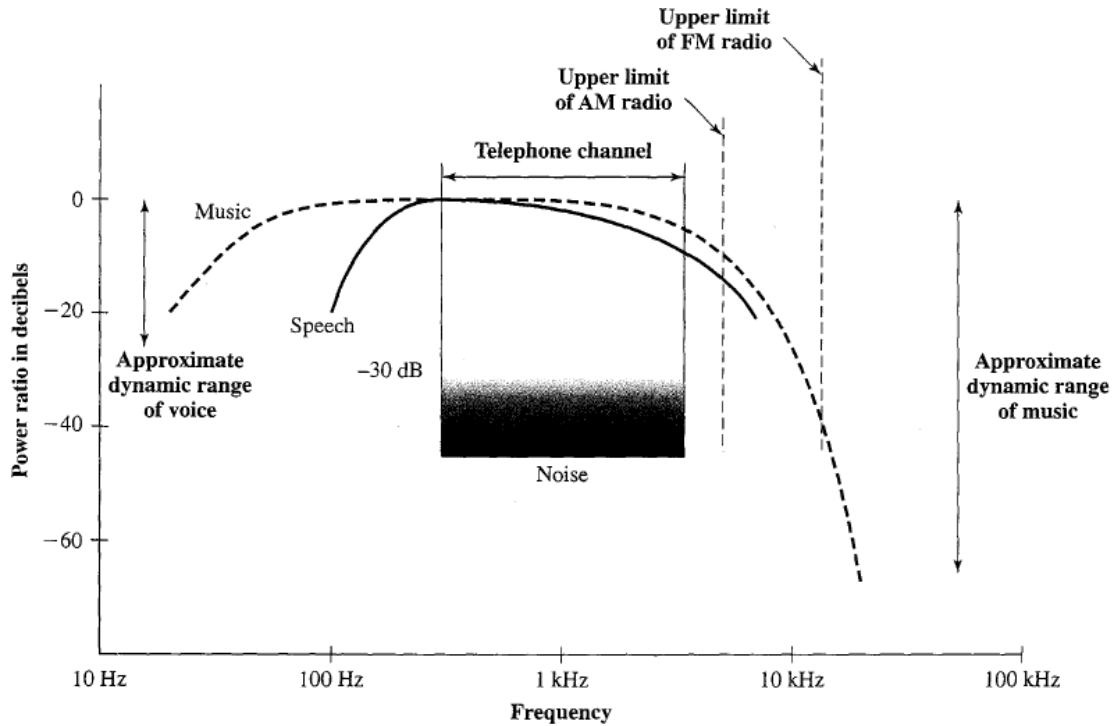
noise.” *Id.*, Abstract. This method not only solved the issues plaguing the prior art, but—as the Patent Office recognized—yielded a new technology.

While output volume adjustment as well as bass and treble adjustment are well-known, the steps of the claim language are neither well-known or obvious. For instance

Ex. E, at HYTERA_000738.

In addition to these volume and frequency adjustments, the specification explains two other key aspects of the claimed method. First, the ‘846 Patent makes clear that the claimed method is an automatic process. ‘846 Patent, at 4:3–15, 11:28–40. Claim 1 is plainly directed to a method for “adaptively adjusting an acoustic effect,” and the specification describes audio improvements that the “user does not need to adjust by himself.” *Id.* at 4:8. Moreover, the Summary of Invention could not be more explicit about the context of the invention: “the volume and the frequency response may be *automatically* adjusted with the method provided in the disclosure.” *Id.* at 4:4–5 (emphasis added).

Second, Hytera’s claimed method is clearly directed to voice communications and improving sound in the voice band. *Id.* at 5:13–26, 10:47–57, 11:25–40. The “voice band” is the range of frequencies that cover human speech, a subset of both the larger range of frequencies audible to the human ear, and the entire frequency spectrum:



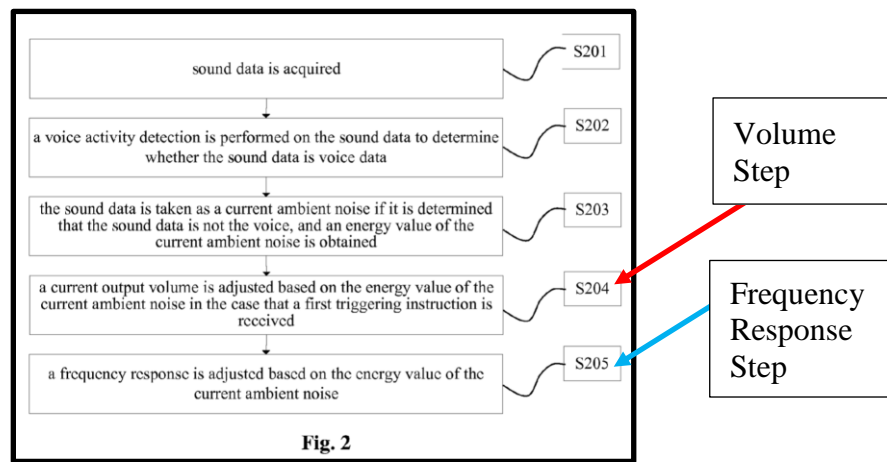
Ex. N, at HYTERA_01412227; Ex. F ¶ 31. Not only does the ‘846 Patent refer to voice dozens of times, but the specification expressly contemplates applying the claimed method to “an intercom, a mobile phone, a television, a radio”—all voice applications. ‘846 Patent, at 5:41–46. The specification makes clear that the disputed “treble boost” and “bass boost” adjustments are performed specifically to improve voice. *Id.* at 5:13–26, 10:47–57, 11:25–40.

In short, the entire point of the method claimed in the ‘846 Patent is to automatically improve audibility of voices. Therefore, any adjustments made to frequency response under the claimed method are necessarily directed toward improving either high frequencies or low frequencies in the voice band range.

B. Motorola not only tries to limit the ‘846 Patent to a single embodiment, but it deliberately misreads that embodiment.

The ‘846 Patent demonstrates how it improves the audibility of voices in several embodiments. In the broadest embodiment (reflected in claim 1), Hytera’s patented method is constantly doing three things: (1) obtaining an “energy value” of ambient noise (i.e., the

background noise around the radio), (2) adjusting the output volume based on the ambient noise, and (3) adjusting the frequency response based on the ambient noise using a “treble boost processing” or a “bass boost processing.” Building on this embodiment, Hytera discloses additional steps used to distinguish between voice and ambient noise by sampling sound data (reflected in claim 5). If voice is detected, no adjustments are made in response to ambient noise because a radio user is talking—not listening. If voice is not detected, then the sound data is treated as ambient noise and its energy value is used to adjust volume and frequency response. As the ‘846 Patent states, Figure 2 is an “example” of that embodiment.



‘846 Patent, Fig. 2 (annotations added); *id.* at 8:45–11:13 (discussing steps S204 and S205).

For purposes of claim construction, the embodiment in Figure 2 is important. Motorola not only attempts to limit its constructions to the figures describing step S205 (frequency response), but it also improperly imports concepts like “gain” from step S204 (volume) into the frequency response claim element. Consistent with the specification and claims, Figure 2 shows distinct volume and frequency response adjustment steps (annotated above). The ‘846 Patent describes step S204, volume adjustments, in terms of “*gain* adjustment” and “*gain* changes.” *Id.* at 10:1, 10:38 (emphasis added). For step S205, frequency response adjustments, the embodiment describes using a “treble boost filter” or “bass boost filter.” *Id.* at 10:65–66, 11: 7–

8. Notably, the '846 Patent does *not* mention **amplification** or **gain** at all when describing the frequency response adjustment step. For step S205, the '846 Patent also includes two diagrams showing treble and bass frequency response adjustments. These are Figure 5 (“a schematic diagram of a frequency response adjustment with a treble boost according to an embodiment of the disclosure”) and Figure 6 (“a schematic diagram of a frequency response adjustment with a bass boost according to an embodiment of the disclosure”). *Id.* at 10:66–67, 11:8–9.

Despite this clear distinction between volume (gain) and frequency response adjustments (treble/bass boost processing), Motorola’s expert concludes that Figures 5 and 6 not only show—but **mandate**—that “treble boost processing” and “bass boost processing” means “**amplification** of all [treble/bass] frequencies using a **gain** greater than 1.” Indeed, Dr. Anderson admitted that he believes “the only place the treble boost processing is described is in Figure 5.”

Q. And it's your opinion that Figure 5 supports your Claim Construction of treble boost being an amplification of all treble frequencies using a gain greater than one?

A. I would say Figure 5 is consistent with and supports that.

Q. Okay. What other embodiments did you consider?

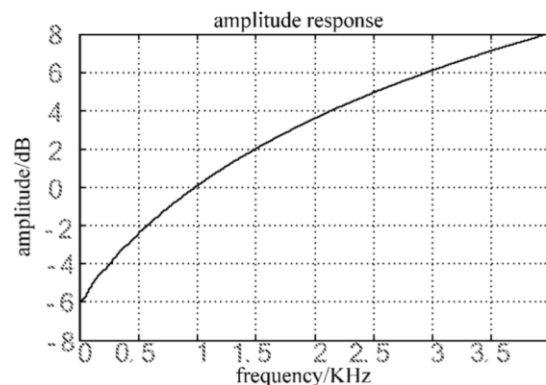


Fig. 5

A. There are two embodiments that refer to Figure 5. There are no others.

Q. There are two embodiments that refer to Figure 5?

A. I believe so.

Q. Okay. If you could point that out, I would appreciate it.

A. Okay. I might have misspoken there. There are two embodiments; one in Figure 1 and one in Figure 2, both of which do the treble boost processing. ***And the only place the treble boost processing is described is in Figure 5.***

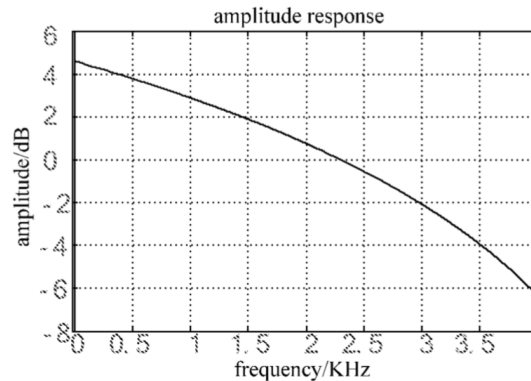


Fig. 6

Ex. J, at 113:11–114:6 (emphasis added); ‘846 Patent, Figs. 5, 6.

As an initial matter, the notion that Dr. Anderson could glean a construction as specific and narrow as “amplification using a gain greater than 1” from just Figures 5 or 6 is absurd. But when viewed in light of Dr. Anderson’s reasoning and admissions, his construction can only be described as a deliberate misreading of the ‘846 Patent. Indeed, Dr. Anderson concedes that the patent ***does not*** define “treble/bass boost,” ***does not*** exclude the meanings Motorola excludes, and ***does not*** limit boost to the construction Motorola wants.

Q. With respect to the 846 Patent [Deposition Exhibit 3], does it define boost as an increase?

A. The 864 patent does not define the term boost, but it demonstrates the term boost.

Q. Does it define the term boost in the 846 Patent, according to you?

Q. Okay. And does the 846 Patent explicitly exclude decreasing the treble frequencies or the bass frequencies relative to the other frequencies from the term boosting?

A. So talking about treble boost, the 846 Patent does not say that boosting cannot mean decreasing. I would expect it to, but it doesn't say that.

<p>A. He does not -- he is his own lexicographer.</p> <p>Q. Does it ever say that boost as a gain greater -- an amplification using a gain greater than one?</p> <p>A. It does not.</p> <p>Q. Okay. And does it limit anywhere in the 846 Patent boost to an increase?</p> <p>A. It does not say anything about the meaning of boost. It also doesn't say anything about the meaning of zero. And it doesn't limit it to be a value of -- a null value. But it's all understood, just as boost is understood by one in the art to mean an increase.</p>	<p>Q. Okay. So is there an explicit or expressed statement -- a clear statement in the 846 specification that limits boost to an amplification with an increase greater than one?</p> <p>MR. CARTER: Objection; asked and answered multiple times.</p> <p>A. The specification never uses those words like that.</p> <p>Q. Does the claim use those words like that?</p> <p>A. No.</p>
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Ex. J, at 49:24–50:19, 200:15–22, 252:1–11.

Apparently unable to find anything in Hytera’s patent that supports his reading, Dr. Anderson concedes that the patent merely “demonstrates” the construction and that his construction for boost would be “understood.” Even assuming Dr. Anderson *could* somehow arrive at “amplification using gain greater than 1” by simply looking at Figures 5 and 6, he admits that doing so would be “inappropriate.

<p>Q. Would it be inappropriate to limit treble boost by the disclosure in Figure 5 or bass boost in the disclosure in Figure 6?</p> <p>MR. CARTER: Objection; asked and answered multiple times.</p> <p>A. That would be inappropriate.</p>
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Ex. J, at 288:13-18; *see also id.* at 277:7-288:18.

Motorola’s attempt to limit “treble boost” and “bass boost” using a single figure is symptomatic of a larger problem in this dispute. Despite having only three terms at issue, each of Motorola’s constructions elevate extrinsic evidence over the intrinsic record—even though its

expert admits that Hytera's patent is "dispositive" of the issues. Ex. J, at 11:15-25. The fact that Motorola feels the need to depart so drastically from Hytera's patent is telling. As detailed below, both the law and Hytera's '846 Patent support the constructions Hytera proposes, and the Court should adopt those constructions.

IV. Legal Standard

Three key rules of claim construction apply in this case.

A. Hytera's claim terms should be given the full scope of their ordinary meaning.

Claim terms are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the specification and prosecution history. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). "There are only two exceptions to this general rule: (1) when a patentee sets out a definition and acts as his own lexicographer, or (2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Thorner*, 669 F.3d at 1365 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)). Neither exception applies here. Descriptive claim terms should be given their "full meaning," and "modifiers will not be added to broad terms standing alone." *Johnson Worldwide Assocs. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999). As such, there is a "heavy presumption" that claims are entitled to their *full ordinary meaning*. *Id.*

B. Hytera's claims should not be limited to particular embodiments—let alone figures—described in the specification.

Under well-established Federal Circuit precedent, limitations are not to be imported from the written description into the claims. *See TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1328 (Fed.

Cir. 2015) (“[T]his court has repeatedly cautioned against importing limitations from an embodiment into the claims.”); *Mikkelsen Graphic Eng'g, Inc. v. Zund Am., Inc.*, 541 F. App'x 964, 971 (Fed. Cir. 2013) (“[I]t is well established that ‘particular embodiments appearing in the specification will not generally be read into the claims.’”) (quoting *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988)); *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) (“[P]atent coverage is not necessarily limited to inventions that look like the ones in the figures.”); *Phillips*, 415 F.3d at 1323 (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”).

C. The best evidence of what Hytera’s claims mean is the intrinsic patent record, not unreliable extrinsic evidence—including expert testimony—that contradicts the ’846 Patent.

The specification “always highly relevant” to claim construction, and is usually dispositive, being “the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*, 90 F.3d at 1582). Only in “those rare instances” where a claim term is still unclear after a review of the intrinsic evidence, *Vitronics*, 90 F.3d at 1585, may courts rely on extrinsic evidence (e.g., dictionaries, treatises, prior art and testimony). And such evidence is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (internal quotation omitted). Of this “less significant” evidence, expert opinion is often the least reliable and “should be treated with the utmost caution, for it is no better than opinion testimony on the meaning of statutory terms.” *Vitronics*, 90 F.3d at 1585; *see also SkinMedica, Inc. v. Histogen Inc.*, 727 F.3d 1187, 1195 (Fed. Cir. 2013) (“Expert testimony, in particular, is less reliable because it ‘is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic

evidence.’’)) (quoting *Phillips*, 415 F.3d at 1317). For this reason, “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful,” and courts “should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history.” *Id.* “Legal error arises when a court relies on extrinsic evidence that contradicts the intrinsic record.” *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1379 (Fed. Cir. 2016) (citing *Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 790 F.3d 1329, 1338 (Fed. Cir. 2015)). This is exactly the disfavored evidence on which Motorola relies.

V. DISCUSSION

Hytera’s proposed claim constructions track the rules of claim construction. Each construction reflects the ordinary meaning to one skilled in the art as informed by the ‘846 Patent, each finds ample support in the intrinsic record of the ‘846 Patent, and each term is construed to include the full scope of its meaning. Indeed, even assuming some resort to extrinsic evidence were necessary, that evidence also favors Hytera’s constructions. The Court should adopt Hytera’s proposed constructions because they are firmly grounded in the Federal Circuit’s guidance for construing claim terms.

A. *An Energy Value*: The Federal Circuit’s “general rule” is that “an” means “one or more.”

Hytera’s Proposed Construction	Motorola’s Proposed Construction
“an energy value”: Plain and ordinary meaning; no construction required.	“an energy value”: a single energy value.

Ex. B, at app’x 1; Ex. C, at 2.

The term “an energy value” should simply be afforded its plain and ordinary meaning. According to the Federal Circuit, Motorola’s construction of “**an** energy value”—to mean a “**single**”—is wrong as a matter of law. The “general rule” is that “an” means “**one or more**.”

The Federal Circuit plainly holds that “the use of the indefinite articles ‘a’ or ‘an’ means ‘**one or more**.’” *SanDisk Corp. v. Kingston Tech. Co.*, 695 F.3d 1348, 1360 (Fed. Cir. 2012) (emphasis added). In *SanDisk*, the Federal Circuit reversed the district court’s claim construction that interpreted “**a** user data portion and **an** overhead portion” to mean “a **single** user data and a **single** overhead portion.” *SanDisk*, 695 F.3d at 1359–61 (emphasis added). In doing so, the Federal Circuit reinforced “the general rule set forth in *Baldwin* against limiting claim terms using the indefinite articles ‘a’ and ‘an’ to mean ‘one.’” *Id.* at 1361 (citing *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342–43 (Fed. Cir. 2008)) (interpreting “a” or “an” to mean “one or more” is “best described as a rule, rather than merely as a presumption or even a convention”). *SanDisk* also reiterated that the exceptions to this rule are “extremely limited” and only apply in the rare instance where the patentee “evinces a clear intent to limit ‘a’ or ‘an’ to ‘one.’” *Id.* at 1342. Moreover, “subsequent use of definite articles ‘the’ or ‘said’ in a claim to refer back to the same claim term **does not change the general plural rule**, but simply **reinvokes that non-singular meaning**.” *Id.* (emphasis added). Simply put, *SanDisk* eviscerates Motorola’s construction.

Motorola asks this Court to adopt the exact construction (“single”) that the Federal Circuit reversed in *SanDisk*. Motorola’s “expert” testimony on the word “an” deliberately supports Motorola’s construction. Motorola’s counsel apparently did not make Dr. Anderson aware of the Federal Circuit’s longstanding rule. This left Dr. Anderson to deliver an opinion that was doomed from the start—and the **exact opposite** of the Federal Circuit law—that one of

skill would understand “*an* energy value” followed by subsequent references to “*the* energy value” to mean a single energy value. Ex. G, at 5–6. *Contra Baldwin*, 512 F.3d at 1342–43 (“The subsequent use of definite articles ‘the’ or ‘said’ in a claim to refer back to the same claim term does not change the general plural rule, but simply reinvokes that non-singular meaning.”). Dr. Anderson admitted that “an” is not a technical term, that he looked up no case law on the issue, and that his only source of case law on the issue was Motorola’s counsel:

Q.	Did you look at what the case law says about "an" and "the"?
A.	I did not look up case law.
Q.	Was the sum total of what you received in case law limited to your counsel?
A.	I believe so.

Ex. J, at 242:8–13. This “opinion” can be discarded.

Not only is Motorola’s construction wrong, but it ignored case law so pervasive that the Federal Circuit describes it as a rule. Should the Court find it necessary to construe “an energy value” at all, Hytera simply asks that the Court construe “an” as required by Federal Circuit law and adopt the plain and ordinary meaning of the term.

- B. *Treble Boost Processing:* The full scope of the “treble boost processing” includes emphasizing treble frequencies relative to other frequencies, is not limited to “amplification using a gain greater than 1.”**

Hytera’s Proposed Construction	Motorola’s Proposed Construction
“ treble boost processing ”: An automatic adjustment that results in increased audibility of high frequencies in the voice band of the current output.	“ treble boost ”: an amplification of all treble frequencies using a gain greater than 1.

Ex. B, at app’x 1; Ex. C, at 2.

Hytera’s construction is based on long-established claim construction principals that claim terms should be given their fullest ordinary meaning unless the intrinsic record necessitates

a different construction. Conversely, Motorola impermissibly limits the claim scope. To arrive at such a narrow construction, Motorola turns claim construction law on its head, working backward from a “term of art” coined by its expert and then importing limitations from the specification to support that construction. This is simply not the law of claim construction.

In sum, the parties disagree on three separate aspects of the term “treble boost processing”:

- The range of frequencies encompassed “treble”: Hytera asserts that treble should have its ordinary meaning in light of the specification, “high frequencies in the voice band”; Motorola contends treble should be divorced from the specification and circuitously construed to require “all treble frequencies”;
- What it means to “boost” treble: Hytera asserts that a treble boost ordinarily means “increased audibility” of treble frequencies; Motorola argues a very narrow reading requiring “an amplification of all treble frequencies using a gain greater than 1”; and
- Whether the “processing” is automatic: Hytera believes that “processing” in view of the intrinsic evidence is automatic; Motorola has not offered a position on the issue.

1. The range of frequencies encompassed by “treble”

One of ordinary skill in the art understands that, at minimum, treble means high frequencies. *See* Ex. J, at 134:15–18 (explaining that a “treble boost filter” boosts “the high frequencies”); Ex. K, at 133:15–19 (describing “treble frequencies” as “high frequency”). Read in the context of the ‘846 Patent, which concerns voice communications, the ordinary meaning of “treble” is “high frequencies in the voice band.”

The ‘846 Patent’s consistent and pervasive reference to voice leaves no doubt as to the plain meaning of “treble.” “Voice” appears at least 65 times in the ‘846 Patent’s specification.

The patent frames the purpose of the invention as overcoming “disadvantages” of prior art methods that “improve an intelligibility of a voice.” ‘864 Patent, at 1:24, 43. The invention is applicable to devices that typically include vocal sound output, such as “an intercom, a mobile phone, a television, a radio.” *Id.* at 5:43–44. The ‘846 Patent teaches a method where “a treble boost processing is performed to make a voice clear,” or “a bass boost processing is performed to make the voice soft.” *Id.* at 5:21–22, 5:25–26. In either case, the purpose of the adjustment is to enhance the quality of a sound in the voice band.

In contrast, Motorola’s construction unnecessarily narrows the scope of the claim by requiring a boost of “all” treble frequencies. On one hand, Motorola’s construction would require a boost of frequencies well outside the voice band, which would serve no purpose in a method aimed at making “a voice clear.” ‘846 Patent, 5:21–22. The patent, unsurprisingly, is silent on frequencies outside the voice band. On the other hand, Motorola’s construction would exclude situations where vocal clarity is enhanced by boosting a part (as opposed to “all”) of the treble frequencies. Nowhere does the ‘846 Patent expressly or impliedly exclude a boost of only some of the treble frequencies. The addition of “all” is contrary to the plain meaning of “treble” in light of the ‘846 Patent, and Motorola has not provided a scintilla of evidence from the intrinsic or extrinsic record to overcome the “heavy presumption” in favor of plain and ordinary meaning. *Johnson*, 175 F.3d at 989. Motorola has made up an additional limitation out of whole cloth and would have this Court import it into the claim. The Court should not oblige.

2. What is means to “boost” treble

The term “treble boost” should be construed to mean “an adjustment that results in increased audibility” of treble frequencies. The term “boost,” used in relation to a frequency range, has a broad meaning in the art—to “boost” a frequency range is to increase its audibility

by emphasizing it, enhancing it or improving it in relation to other frequencies. The term “treble boost” is thus sufficiently broad to include boosting treble by (1) increasing treble in relation to other frequencies (an absolute increase) or (2) attenuating other frequencies in relation to treble (a relative increase)—both of which emphasize, enhance and improve treble to increase its audibility.

The ‘846 Patent and the prior art are in agreement that to “boost” treble frequencies means to emphasize, enhance or improve them. In other words, to increase their audibility. While the ‘846 Patent specification most often uses the term “treble boost,” it also uses the terms “improve” and “enhance” to describe the treble boost of claim 1. For example, the ‘846 Patent explains that “[i]n the case that the ambient noise is loud, it is easier to clearly hear a content of a speaker by improving a high frequency part.” ‘846 Patent, at 10:51–53 (emphasis added). Further, the Abstract twice refers to the treble boost as a “treble enhancement.” *Id.*, Abstract. Even Motorola’s own expert agrees that emphasizing is a boost:

<p>Q. So is emphasizing treble frequencies to a higher level than the signal level of mid range frequencies boosting?</p> <p>A. Yes.</p>
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Ex. J, at 143:19–22; *see also* Ex. G, at 7, 9 (defining “boost” as “emphasizing”); Ex. I, at 2, 4, 5, 7, 8, 10 (same). Despite Motorola’s machinations, its expert agrees with Hytera.

Motorola’s construction blatantly eliminates half of the scope of the term “treble boost” by contravening well-established claim construction practices. Under Motorola’s construction, boost “cannot” include a relative boost in which other frequencies are attenuated. Ex. J, at 95:23–96:2. Yet, as Motorola’s expert acknowledges, nowhere does the ‘846 Patent evince a clear disavowal of boosting treble by attenuating other frequencies. *Id.* at 49:24–50:19, 200:15–22.

Instead, Motorola performs the claim construction analysis backward—starting with their expert’s own definition and cherry-picking some evidence while ignoring the rest. Even then, Motorola manages to rely on an incorrect interpretation of Figure 5 of the ‘846 Patent (its only intrinsic evidence) and extrinsic evidence that rebuts its own construction. This is nowhere near sufficient to overcome the “heavy presumption” that claim terms have their “full meaning,” and “modifiers will not be added to broad terms standing alone.” *Johnson*, 175 F.3d at 989.

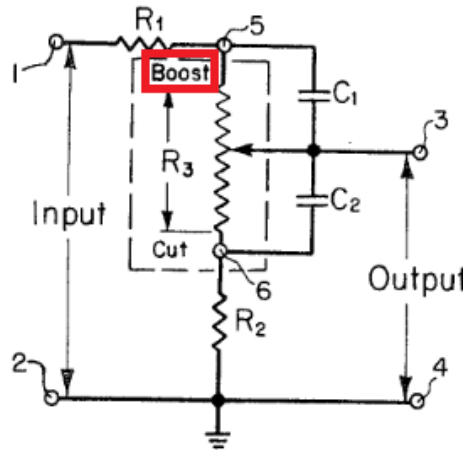
Motorola’s expert insists, without any support, “as one of extraordinary skill in the art, that you *cannot* [boost treble] by decreasing the mid frequencies and bass part of the voice.” Ex. J, at 95:25–96:2 (emphasis added). He even admitted that his construction was formed wholly in his mind, without reference to any other evidence: “[f]or me, when I read those terms, they are very clear. I understood them. I didn't need to look it up.” Ex. J, at 23:20–22. This is clear error. As the Federal Circuit has repeatedly instructed, “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful.” *SkinMedica*, 727 F.3d at 1195 (quoting *Phillips*, 415 F.3d at 1317).

Motorola’s backward claim construction approach flies in the face of precedent. The Federal Circuit has consistently held that where a term is broad enough to encompass two possible solutions, the term must be read to cover both, absent an express disavowal of one solution in the specification. In *Specialty Composites v. Cabot Corp.*, 845 F.2d 981 (Fed. Cir. 1988), the Federal Circuit reversed a district court construction that limited the claim term “plasticizer” to only “external plasticizers.” The defendant’s expert testified that the term “plasticizer” was “a narrow term that could never be applied to internal plasticization.” *Id.* at 986. The expert’s opinion, however, was contradicted by prior art showing that people of skill in the art used the term “plasticizer” more broadly to include both internal and external plasticizers.

Id. The Federal Circuit concluded that “an examination of the way that the patent term ‘plasticizer’ is used by those skilled in the art does not confirm the district court’s view that ‘plasticizer’ in this patent must be limited to external plasticizers and excludes internal plasticizers.” *Id.*

The defendant also argued that the term “plasticizer” should have been limited based on the fact that all three examples in the specification were externally plasticized. *Id.* at 987. The Federal Circuit disagreed, reciting the long-standing rule that “particular embodiments appearing in the specification will not generally be read into the claims.” *Id.* The specification did not “teach that external plasticizers *must* be used,” and thus it was reversible error to so limit the claim. *Id.*; *see also Mikkelsen*, 541 F. App’x at 971 (endorsing *Specialty Composites* and adding that “use of a specific embodiment for illustrative purposes does not impliedly exclude other embodiments”).

Just as in *Specialty Composites*, Motorola starts its construction as far from the patent itself as possible—with expert opinion. And just as in *Specialty Composites*, the prior art contradicts their expert’s opinion by using the term boost broadly to include both absolute and relative increases. For example, U.S. Patent No. 3,460,071—cited by Motorola’s expert—explains that “[e]mphasizing the signal level of the frequencies (bass or treble) to a level higher than the signal level of the midrange frequencies is referred to as boosting.” Ex. L, at 1:42–44; Ex. G, at 7, 9. Motorola’s expert (very reluctantly) admitted that the circuit of the ‘071 Patent, reproduced below, explicitly creates a “boost” without a gain greater than 1:



Ex. L, Fig. 1 (annotation added); Ex. J, at 164:23–165:6. In other words, the circuit shown above boosts a frequency range merely by lowering other frequencies. Moreover, Figure 7 of the ‘071 Patent explicitly describes the output of its boosting circuit as a “relative response.” Ex. L, Fig. 7; Ex. J, at 163:10–17. Likewise, U.S. Patent No. 3,605,042 defines a frequency boost in relative terms as follows: “[a]s is known in this art, when there is less attenuation to low frequencies than to high frequencies relative to midband frequencies, the bass response is said to be boosted.” Ex. M, at 1:34–41; *see also* Ex. H ¶ 16 (discussing how Motorola’s extrinsic evidence belies its own construction). Motorola’s construction excludes prior art that its own expert proffered in support.

To further “support” its construction, Motorola provides several patents and textbooks using the term “boost” in situations where there is a gain greater than 1. That Motorola found references using the term “boost” this way is both unsurprising and unhelpful—Motorola’s construction is just one way to achieve a boost. Motorola’s references, however, are most instructive for what they do not say. ***Not a single cited reference states that the term “boost” for a frequency range excludes boost by attenuation of other frequencies.*** Again, just as in *Specialty Composites*, nothing in the prior art suggests that boost “must be limited to” an absolute increase or that boost “excludes” a relative increase. *Specialty Composites*, 845 F.2d at 986. To the contrary, the prior art is replete with examples of relative boost. *See, e.g.*, Exs. L, M.

Furthermore, Motorola attempts to support its opinion by reference to Figure 5 of the ‘846 Patent. This attempt is flawed for at least two reasons. First, it is black-letter law that courts are not to import limitations from an embodiment into the claims. *TomTom*, 790 F.3d at 1328. This proscription expressly includes importing limitations from a figure. *See MBO Labs.*, 474 F.3d at 1333 (“[P]atent coverage is not necessarily limited to inventions that look like the ones in the figures.”). Figure 5 of the ‘846 Patent is expressly described as a frequency response according to *an embodiment*. ‘846 Patent, at 11:11–12.

Second, Motorola erroneously assumes that the curve of Figure 5 shows frequency response (result) of only the treble boost step. Figure 5 depicts the combined output of the treble boost step and the prior volume-increase step. As illustrated in Figure 2 of the ‘846 Patent, the described embodiment performs an output volume adjustment at step S204 followed by a frequency response adjustment (e.g., treble boost) at step S205. The fact that Figure 5 shows a gain greater than 1 for treble frequencies is more likely due to the volume gain introduced in the previous step and used as an input for the “treble boost filter” referenced in Figure 5. ‘846 Patent, 10:65–66; *see also* Ex. K, at 87:13–96:5 (explaining how Figure 5 can be read multiple ways).

3. Whether “processing” is automatic

The last part of the limitation, “processing,” means an “automatic” processing. The language surrounding claim 1 “implies” that the processing is automatic. Ex. J, at 230:13–16. For instance, one of ordinary skill in the art would imply automatic from the term “adaptively adjusting” in the preamble of claim. Ex. K, at 121:21–122:2. The language following the word processing, “if it is determined that the energy value of the current ambient noise is greater than a first threshold,” likewise requires automatic processing because its occurrence is dependent on comparison to a threshold. This claim language led Motorola’s own expert to agree that the “rest

of the claim kind of implies” that it is “automatic.” Ex. J, at 230:13–16. Beyond the claim language itself, the specification is unequivocal: “the volume and the frequency response may be *automatically* adjusted with the method provided in the disclosure.” ’846 Patent, at 4:4–5. Moreover, the invention of the ’846 Patent is advantageous over the prior art because “[t]he method for manually adjusting the volume by the user is inconvenient, with which the user can not focus on his work, thereby decreasing the user experience.” ’846 Patent 1:25–28.

C. “Bass Boost Processing”: Motorola simply applies the same faulty “amplification using a gain greater than 1” language.

Hytera’s Proposed Construction	Motorola’s Proposed Construction
“ bass boost processing ”: An automatic adjustment that results in increased audibility of low frequencies in the voice band of the current output.	“ bass boost ”: an amplification of all bass frequencies using a gain greater than 1.

Ex. B, at app’x 3; Ex. C, at 4.

As seen above, the only difference between the parties’ constructions for “bass boost [processing]” as opposed to “treble boost [processing]” is Hytera’s substitution of “low” instead of “high” frequencies and Motorola’s substitution of “bass” for “treble.” The rest of the constructions are the same, and all the same disputes are at issue for “bass boost processing.” As its expert explained, Motorola relies on the same reading of “boost” to arrive at the constructions for “treble boost” and “bass boost”:

A. The text, as you might have noticed, mirrors or tracks pretty well between treble and bass boost. Treble is a frequency range and bass is another frequency range. And boosting is the same in both places. So they are similar in structure.

Ex. J, at 30:2–7. To avoid belaboring the point, the Court should adopt its construction for “bass boost processing” for the same reasons it details for “treble boost processing”:

- Hytera’s construction is based on the full ordinary meaning of the claim term in light of the intrinsic evidence;
- Motorola’s construction for “boost” is the product of its expert, is divorced from the intrinsic record, and is contradicted by Motorola’s own extrinsic evidence;
- Motorola’s attempt to limit the claim to require adjustment of “all bass” is not only absent from the ‘846 Patent but would lead to a nonsensical adjustment of frequencies so low that they would not impact voice communications; and
- Motorola incorrectly interprets the embodiment of Figure 6 as showing a gain greater than 1 for the “bass boost filter” and then impermissibly imports that incorrect interpretation into the claim.

In sum, for the same reasons that support adopting Hytera’s construction for “treble boost processing,” the Court should adopt Hytera’s construction for “bass boost processing.”

VI. CONCLUSION

Hytera’s proposed claim constructions for “an energy value,” “treble boost processing,” and “bass boost processing” are rooted in the language of the ‘846 Patent—the one document even Motorola’s expert admits is dispositive. Motorola’s constructions offer the opposite—litigation-driven interpretations formed from expert “opinion” that attempt to recast Hytera’s patent and ignore the basic rules for claim construction. This approach not only invites legal error, but it robs Hytera of the basic expectation that its patent will—at minimum—be construed to the full extent of the words it chose. Accordingly, Hytera respectfully requests that the Court adopt its proposed constructions for all disputed terms.

Respectfully submitted,

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CERTIFICATE OF SERVICE

A copy of the foregoing was electronically filed with the Court this 3rd day of May, 2018,
and will be served upon counsel of record via the Court's electronic filing system.

/Todd R. Tucker/

An attorney for Plaintiff Hytera
Communications Corp. Ltd.